

## Interoffice Memorandum

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| Action   | Info  | File          |
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| From   | R. Estes / D&M (PHX)<br>I. Bilsky / D&M (AUS)   |               |
| Date   | February 21, 2000   |               |
| Subject  | Analysis of federal and state air quality regulatory issues for SynGypAS Conversion – Intermountain Power Project |               |

The purpose of this memorandum is to summarize our findings relative to certain air quality regulatory issues pertaining to the proposed SynGypAS conversion of the flue gas desulphurization (FGD) systems in use at the coal-fired Intermountain Power Project (IPP) generating station, located near Delta, Utah. As you know, Radian VC-3 recently asked D&M for assistance in evaluating applicable air permitting requirements and Bob Estes of the D&M Phoenix office attended a meeting in Los Angeles on Tuesday, February 15, 2000 between various staff from Radian, LADWP, R.W. Beck and Intermountain Power Agency. During the meeting, several issues were discussed, which need not be reiterated here. At the conclusion of the meeting, D&M was asked to specifically address the following urgent issues:

- Will recent revisions to NSPS Subpart Da, which incorporate the Acid Rain NOx emission limitation of 0.15 lbs/MMBtu, applicable to plants which undergo commencement of construction or modification after July 9, 1997, apply to the SynGypAS conversion, thereby shortening the current time frame for meeting those limitations? (Currently, by virtue of the early reduction provisions of the Acid Rain program, this deadline is in 2007.)
- Does the planned conversion trigger federal or state air permitting requirements?
- If a permitting effort is initiated, are there potential compliance issues associated with past increases in generating unit fuel firing and electrical output, which could lead to an enforcement action by federal or state authorities?

Due to the gravity and urgency of this matter, Mr. Estes requested the participation of Mr. Irvin Bilsky, of our Austin, Texas office, to participate in the regulatory analysis. This memo represents the conclusions of both Mr. Estes and Mr. Bilsky, and is organized to address each issue sequentially.

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### **Applicability of New Source Performance Standards (NSPS) to the SynGypAS Conversion**

The SynGypAS conversion process involves two basic steps; changing the primary fuel burned in the steam boiler of each generating unit to a blend of 20% petroleum coke, 80% bituminous or subbituminous coal, and changing the FGD processes from a lime or limestone based sulphur removal reaction to an ammonia based reaction, resulting in the formation of ammonium sulphate, which can be recovered, treated and packaged for sale as fertilizer. The switch to petroleum coke involves virtually no physical change or capital improvement to the boilers. The FGD system conversion involves considerable physical and chemical process changes and capital improvements to the scrubbing system and the addition of the ammonium sulphate recovery/packaging equipment.

The definition of "modification" applicable to the federal New Source Performance Standards (NSPS), is contained in the introductory General Provisions of 40 CFR Part 60, Subpart A. Section 60.14(a) defines a modification as "any physical or operational change to an existing facility which result in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies." However, this rule goes on to establish certain exemptions to this definition, two of which are critical to this analysis.

40 CFR 60.14(e) provides that certain <sup>as provided by 60.1</sup> listed actions shall not, by themselves, be considered modifications under Part 60 (the NSPS rules). Paragraph 60.14(e)(4) excepts from modifications the "(u)se of an alternate fuel or raw material if, prior to the date any standard under Part 60 becomes applicable to that source type, the existing facility was designed to accommodate that alternate use. A facility shall be considered to be designed to accommodate an alternate fuel or raw material if that use could be accomplished under the facility's construction specifications as amended prior to the change."

We understand from Radian that no physical changes or capital improvements to the boilers are necessary to accommodate the introduction of petroleum coke along with coal. Therefore, we conclude that the boilers were originally designed to accommodate petroleum coke as fuel, and the exemption of 40 CFR 60.14(e)(4) applies.

Under 40 CFR 60.14(e)(5) an additional exception from the definition of modification is specified for "(t)he addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or is replaced by a system which the Administrator determines to be less environmentally beneficial." This means that, unless the SynGypAS conversion is determined to be less effective in reducing regulated air pollutants, it is deemed to not be a modification.

Based on the foregoing two paragraphs, it can be asserted that the planned SynGypAS conversion does not constitute a "modification", as defined under applicable federal NSPS rules.

### **Will Planned Permitting Trigger New NSPS Subpart Da NOx Emission Limitations of 0.15 lbs NOx/MMBtu?**

The planned SynGypAS conversion at the IPSC plant does not constitute a modification, for purposes of NSPS applicability, due to the exceptions for alternate fuels and replacement of

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pollution control systems. Applicability of a NSPS, for an affected facility, is triggered by new construction or modification of an affected source. The proposed conversions are not new affected facilities and appear to meet the exceptions to what is considered a modification under the NSPS. Therefore, 40 CFR 60.44a(d)(2), which applies to affected facilities for which modification commenced after July 9, 1997, does not apply. The tighter NOx emission limits will not be triggered by the conversion project.

The federal rules also include National Emissions Standards for Hazardous Air Pollutants (NESHAPs). At this time it does not appear that there are any NESHAPs provisions that may be triggered by the proposed project. State agencies typically prefer to make the final determination of rule applicability themselves. Care must be taken to confirm the net emission rate increase of any regulated pollutant or any change in the character of emissions that is likely to occur. Radian should address whether increased emissions of heavy metals, other HAPs or ammonia is anticipated to occur.

#### **Will Preconstruction Permitting Requirements Apply to the SynGyp Conversion Project?**

The State of Utah air pollution control and air permitting requirements are provided in Title 307 of the Utah Administrative Code (UAC). The State of Utah was delegated authority to administer the federal Prevention of Significant Deterioration (PSD) permitting program in the early 1980's. The original PSD permit for the IPP facility was issued by the U.S. EPA June 12, 1980, before full state delegation. By December 3, 1980, the State of Utah issued its first Approval Order for the project. A subsequent Approval Order, issued October 17, 1983, consolidated the June 8, 1980, PSD permit issued by the EPA into the state issued authorization. Approval Orders are required for facility modifications that result in a potential increase of emissions or that change the character of emissions.

UAC Section R307-101-2 contains definitions which apply to the state preconstruction permitting requirements. There are several references to what constitutes a modification in the Utah permitting rules; two of them are defined in R307-101-2.

The first is "Major Modification" which means "...any physical change in or change in the method of operation of a major source that would result in a significant net emissions increase of any pollutant". "Significant" is defined in the Utah rules, essentially the same way it is defined under the federal PSD rules, as a net criteria pollutant emissions increase, associated with a modification project, of 100 TPY of CO, 40 TPY for NOx, VOC and SO2, 15 TPY of PM10, etc.

For air pollutants regulated under the federal Clean Air Act (CAA), but without a listed Significance Level, any emission rate is deemed significant; (literally interpreted, this could include the emission of one molecule). This means that Radian must be able to quantify the net emission increases of heavy metals and other HAPs (pollutants that may be regulated under the federal CAA) associated with the combustion of petroleum coke versus coal. Another pollutant of concern may be ammonia, which is not currently regulated under the CAA, but may be in the future as a precursor to PM2.5 if new rules are implemented by EPA.

The Utah rules also provide a definition of "Modification," for use in determining applicability of minor source permitting requirements. Modification is defined as "...any planned change in a

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source which results in a potential increase of emission". The Utah definition of "potential to emit" is used to evaluate whether the planned SynGypAS conversion project will constitute a modification under the state minor source permitting rules. Specifically, "Potential to Emit" is defined as "...the maximum capacity of a source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation or effect it would have on emissions is enforceable". This means that, since the limitations on fuel firing and emission rates expressed in IPP's Approval Orders are federally enforceable, they can be considered part of the generating station design. As long as those permit limitations are not exceeded, no "potential" emission increase can occur, and therefore, no "modification" has occurred.

The state will require examination of new or increased emissions that may be associated with the project. If new sources are installed with the addition of the SynGypAS conversion, if new pollutants are added, such as ammonia, then a Notice of Intent (the Utah version of a permit amendment application) will have to be filed, reviewed under the state procedures and an Approval Order issued before construction or modification can begin.

In addition, General Condition No. 7 of the current PSD permit for the plant (as represented by the latest Approval Order issued January 8, 1997) requires that the SO2 scrubbers shall be constructed and operated according to a contract document that we presume relates to the original limestone-based FGD design. Therefore, at a minimum, an additional Approval Order (e.g. permit revision) to remove this condition, and replace it with an appropriate design contract for the SynGypAS conversion project, would appear to be necessary. This would only be a state permitting action and would not trigger federal review or NSPS requirements.

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#### **Do Past Increases In Fuel-Firing and Generation Output Represent Potential Compliance Issues?**

During the meeting in Los Angeles on February 15, 2000, considerable discussion of this issue transpired, primarily focusing on the in plant netting requirements associated with the exercise usually performed to determine if a modification is major. We also discussed the "actual versus potential" emissions issues typically associated with PSD permitting efforts and the FERC "re-ratings" of the boilers which occurred in 1995 and 1997. We regret that we had not received all of the Approval Orders issued by the state prior to engaging in the lengthy discussion and may have added to the confusion. In fact, the previous operational increases were not modifications and did not trigger federal or state permitting requirements, as explained below.

The initial PSD permit was issued directly by the U.S. EPA on June 12, 1980, (presumably since the State of Utah did not have fully delegated authority to do so at that time). The initial EPA permit describes four 750 MW units planned for construction within the Introduction section (which is not an enforceable provision) and in the Conditions Section (which is an enforceable provision). However, an Approval Order issued by the State of Utah on October 17, 1983 specifically addresses a request by the IPP to downsize the project from four to two units and to modify the boiler ratings. Further, the Approval Order issued October 17, 1983, also consolidated the June 8, 1980, PSD permit issued by the EPA into the state issued authorization.

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This 1983 Approval Order, and all subsequent Approval Order's restrict each boiler to  $8.352 \times 10^9$  Btu/hour heat input; no further mention of MW ratings appears. Based on a heat rate value of 9500 Btu/KWH (provided to us by LADWP), we calculate that this fuel-firing limitation equates to approximately 879 MW. Therefore, since October 1983, the permit has allowed Intermountain to generate up to 879 MW. We understand that the re-ratings which have occurred to date do not exceed this value. Therefore, there does not appear to be a "sleeping dog" to contend with in the context of any preconstruction air permitting activity required for the SynGypAS conversion project.

Dames & Moore would like to examine the IPP application that resulted in the October 1983 Approval Order, which was submitted to the state on April 14, 1983, to gain clarification regarding representations in the process description of the facilities.

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We sincerely hope that this information clarifies the regulatory issues discussed recently by the project participants. Should you have any questions, please contact Bob Estes at (602) 861-7442 or Irvin Bilsky at (512) 419-6154. It has been our pleasure to assist Radian with this analysis.